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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,302	06/25/2003	Song Wu	TI-33763	5280
23494 7590 05/15/2008 TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265				
EXAMINER JOSEPH, JAISON				
ART UNIT 2611		PAPER NUMBER		
NOTIFICATION DATE 05/15/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
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Office Action Summary

Application No.

10/603,302

Applicant(s)

WU ET AL.

Examiner

JAISON JOSEPH

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 6-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 6 – 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada et al. (USPAP 2003/0058930) in view of Yang et al (US Patent 6,469,988).

Regarding claim 1, Sawada et al teach a communication receiver comprising an input for receiving from a communication transmission apparatus an input analog communication signal (see figure 1, input signal to the pre-filter 12), a feed-forward equalizer coupled to said input for producing in response to said input analog communication signal and equalized analog communication signal (see figure 1, component 12, and 13), a sampler coupled to said feed-forward equalizer for producing digital communication information in response to said equalized analog communication signal (see figure 1, component 14), and a feedback equalizer coupled between said sampler and said feed forward equalizer for controlling said feed forward equalizer in

response to said digital communication information (see figure 1, component 16); wherein feedback equalizer includes a digital to analog conversion portion having an input coupled to said sampler for receiving said digital communication information (see figure 1, component 19), said digital to analog conversion portion having an output coupled to said feed forward equalizer (see figure 1, output signal from component 19 to component 13). Sawada et al is silent on said digital to analog conversion portion includes plurality of digital to analog converters having respective inputs coupled to said sampler and respective outputs coupled to said feed forward equalizer. However, in analogous art, Yang et al teach an filter having digital to analog conversion portion includes plurality of digital to analog converters having respective inputs coupled to said sampler and respective outputs coupled to said feed forward equalizer (see abstract and figure 6 and 12). Therefore it would be obvious to an ordinary skilled in the art at the time the invention was made to incorporate the teachings of plurality of digital to analog converters in Sawada et al filter. The motivation or suggestion to do so is to realize plurality of tap coefficients (see column 2, line 12 – 40).

Regarding claim 2, which inherits the limitations of claim 1, Sawada et al further teach said feed forward equalizer includes a wire summation node (see component 13).

Regarding claim 4, which inherits the limitations of claim 3, Sawada et al further teach said feed forward equalizer includes a wire summation node (see component 13).

Regarding claim 6, which inherits the limitations of claim 1, Yang et al further teach each of the said digital to analog converters includes a current source digital to analog converter (see column 2, line 18 – 40).

Regarding claim 7, which inherits the limitations of claim 6, Yang et al further teach said outputs of said digital to analog converters are connected together at an input of said feed forward equalizer (see column 2, lines 18 –40).

Regarding claim 8, which inherits the limitations of claim 1, Yang et al further teach said feed forward equalizer includes a wire summation node (see column 2, lines 18 – 40).

Regarding claim 9, which inherits the limitations of claim 1, Sawada et al further teach said feedback equalizer includes a delay apparatus coupled between said sampler and said digital to analog converters for providing said digital communication information to said digital to analog converters at different point in time (see abstract and column 2, lines 18 – 40).

Regarding claim 11, which inherits the limitations of claim 1, Sawada et al further teach said feedback equalizer includes a control input for receiving control information, said feedback equalizer responsive to said control information for controlling said feed forward equalizer, said control information designed to minimize interference at temporal boundaries between data symbols carried by said equalized analog communication channel (see figure 1, component 17, the inputs w0-w7).

Regarding claim 12, which inherits the limitations of claim 11, Sawada et al further teaches said input analog communication signal is produced by the communication transmitter apparatus in response to second control information (see figure 1, the output signal of component 14), said first control information designed in

conjunction with the second control information to minimize interference at points in time between said temporal boundaries (see figure 1, components 13, 14, 15 and 16).

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada et al. (USPAP 2003/0058930) in view of Yang et al (US Patent 6,469,988) and further in view of Peon et al (US patent 7027499).

Regarding claim 10, Sawada et al in view of Yang et al is silent on the communication signal carries a SONET communication. However in analogous art, Peon et al teach communication system carries a SONET signal. Therefore it would be obvious to an ordinary skilled in the art at the time the invention was made to have process the SONET signal.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAISON JOSEPH whose telephone number is (571)272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. J./
Examiner, Art Unit 2611

/CHIEH M FAN/
Supervisory Patent Examiner, Art Unit 2611